

Two Additions to the Fasciolariid Genus *Benimakia*

Martin Avery SNYDER
 Department of Malacology
 Academy of Natural Sciences of Philadelphia
 1900 Benjamin Franklin Parkway
 Philadelphia, PA 19103-1195
 dr.martin.snyder@gmail.com

Geerat J. VERMEIJ
 Department of Geology
 University of California at Davis
 One Shields Avenue
 Davis, CA 95616
 vermeij@geology.ucdavis.edu

KEYWORDS. Gastropoda, Fasciolaridae, Philippines, *Benimakia*, new species.

ABSTRACT. We describe *Benimakia cloveri* n. sp. from the Philippines, a species most closely related to *B. fastigium* (Reeve, 1847). Like *B. fastigium*, *B. cloveri* lacks a labral tooth, but *B. cloveri* is less slender. We recognize *Latirus rosadoi* Bozzetti, 2002, from Mozambique, as a labral-tooth-bearing species of *Benimakia* Habe, 1958. There are now three fossil and ten Recent species assigned to the genus *Benimakia*.

INTRODUCTION

The fasciolariid genus *Benimakia* Habe, 1958, is a largely Indo-West Pacific group of early Miocene to Recent fasciolariid gastropods with strongly ribbed, slender shells, a straight siphonal canal, and a lirate aperture. Most species bear a labral tooth at the end of a cord situated at the transition between the convex part of the last whorl and the siphonal protuberance (Vermeij and Snyder, 2003). The three fossil and eight Recent species recognized in Vermeij and Snyder (2003) range widely across the Indo-West Pacific from the coast of East Africa to the Marquesas Islands and, in the case of *B. ogum* (Petuch, 1979), on the Atlantic coast of Brazil. All species occur in the shallow sublittoral zone in reef areas; most have been collected in small numbers. Here we add to the known species by describing one new species and by reassigning a previously described taxon.

Abbreviations

ANSP: Academy of Natural Sciences of Philadelphia, Philadelphia, PA 19103, U.S.A.
 SL: shell length

SYSTEMATICS

Family FASCIOLARIIDAE Gray, 1853
 Genus *Benimakia* Habe, 1958

Type species by original designation: *Turbinella rhodostoma* Dunker, 1860; Recent, Indo-West Pacific.

Benimakia cloveri, n.sp.

Figs 1-10

Type material. Holotype. ANSP 416225, 1 km northwest of Sinkton Cemetery, northwest coast of Camiguin Island, northwest Mindanao, Philippine Islands, live collected under rock slabs at 2-3 m. SL 32.9 mm.

Paratype 1. ANSP 416226, collected with holotype, SL 29.2 mm.

Paratypes 2-5. ANSP 416227, off Naasag, near old volcano, Camiguin Island, live collected in sand under rock/coral slabs at 2-3 m, (2) SL 33.1 mm, (3) SL 31.9 mm, (4) SL 29.6 mm, (5) SL 29.1 mm.

Paratype 6. Clover collection, collected with paratypes 2-5, SL 35.0 mm.

Paratypes 7-10. ANSP 416228, 5 km south of Yumbing, northwest coast of Camiguin Island, live collected under rock slabs at 2-3 m, (7) SL 31.8 mm, (8) SL 28.0 mm, (9) SL 28.3 mm, (10) SL 29.0 mm.

Type Locality. Northwest coast of Camiguin Island, northwest Mindanao, Philippine Islands, 1 km northwest of Sinkton Cemetery, on a substratum of sand and coral rubble, under rock slabs at a depth of 2-3 m.

Distribution. Northwest coast of Camiguin Island, northwest Mindanao, Philippine Islands, 2-3m.

Diagnosis. A relatively compact *Benimakia* with weakly convex outer lip lacking a labral tooth and

having one weak columellar fold adapical to entrance fold of siphonal canal.

Description. Shell solid, medium-sized for genus, maximum length 35.0 mm. Protoconch of about three whorls. Teleoconch consisting of seven whorls separated by weakly impressed sutures; axial sculpture consisting of six to seven low, broad, rounded ribs, obliquely aligned up the spire; spiral sculpture eroded on all but the last three or four whorls, consisting of 20-21 weak, irregular cords from shoulder to upper end of constriction, with eight additional indistinct cords on the siphonal protuberance; outer lip finely crenulated, slightly convex, without abapical or adapical sinus and without labral tooth at edge; inner side of outer lip with nine or ten low, well-spaced, smooth lirae, and with small abapical tooth at position that would be occupied by a labral tooth were one present; inner lip adherent, with weak columellar fold adapical to entrance fold of siphonal canal; parietal rib at adapical end of inner lip absent; siphonal canal short (half or less of the length of the aperture), straight in the axial direction and not dorsally recurved. Exterior of shell creamy white to tan with chocolate brown spiral cords. Interior white to lustrous yellow in some specimens. Operculum typically fasciolariid, light to dark brown, with terminal nucleus. Radula not examined.

Remarks. Our new species from Mindanao is most similar to *B. fastigium* (Reeve, 1847) from Sri Lanka. Both species lack a labral tooth, have about 20-21 exceedingly fine cords on the shoulder and convex part of the last whorl, rounded whorls, a similar number (five to seven) of rounded axial ribs that join at the sutures, and a convex outer lip. *B. fastigium* differs from *B. cloveri* by having a much more slender shell (length to breadth ratio 2.7 to 3.0 in *B. fastigium*, 2.3 to 2.5 in *B. cloveri*) and having a less deeply impressed suture. *B. fastigium* has four small columellar folds adapical to the entrance fold, whereas *B. cloveri* has only one weak columellar fold.

Etymology. Named for Phillip W. Clover who collected all 11 specimens in 2005 and 2006.

Benimakia rosadoi, new combination

Latirus rosadoi Bozzetti, 2002

Figs 11-12

Remarks. Bozzetti (2002) described *Latirus rosadoi* from Mozambique. Examination of specimens in the ANSP collection makes clear that this species belongs to the genus *Benimakia*. With its very weak but distinct labral tooth, the species closely resembles *B. rhodostoma* (type of the genus, originally described from Japan), as well as *B. delicata* Vermeij and Snyder, 2003, from Samoa; *B. lanceolata* (Reeve, 1847) from the Philippines and eastern Indian Ocean; *B. marquesana* (A. Adams, 1855) from the Marquesas Islands; and to a lesser extent the Brazilian *B. ogum*. Like *B. rhodostoma*, the species has three weak columellar folds adapical to the entrance fold. The shell of *B. rosadoi* is relatively squat (length to breadth ratio 2.1). *B. rhodostoma*, which may in the future be recognized as a complex of geographically isolated species (Vermeij and Snyder, 2003), has fewer stronger spiral cords, a longer labral tooth, and a generally somewhat more slender shell.

ACKNOWLEDGEMENTS

We acknowledge the help of Paul Callomon (ANSP) who made the digital images and composed the plate. The referee and editor also made helpful suggestions.

REFERENCES

- Bozzetti, L. 2002. Due nuove specie dal Mozambico (Gastropoda: Prosobranchia: Fasciolaridae). *Malacologia, Mostra Mondiale* 14(36): 3-4.
- Vermeij, G.J. & M.A. Snyder. 2003. The fasciolariid gastropod genus *Benimakia*: new species and a discussion of Indo-Pacific genera in Brazil. *Proceedings of the Academy of Natural Sciences of Philadelphia* 153: 15-22.

Figures 1-12

1-10. *Benimakia cloveri* n. sp.

1-5. Holotype, SL 32.9 mm, ANSP 416225; 6-7. Paratype 1, SL 29.2 mm, ANSP 416226; 8. Paratype 2, SL 33.1 mm, ANSP 416227; 9. Paratype 3, SL 31.9 mm, ANSP 416227; 10. Paratype 6, SL 35.0 mm, Clover collection.

11-12. *Benimakia rosadoi* (Bozzetti, 2002), SL 26.9 mm, collected alive at 3-4 m, Pemba, north Mozambique, ANSP 416229.

